CREATIVITY, EGO INTEGRATION, AND BODY IMAGE BOUNDARIES

BY

LEROY J. LOSHAK
B.A., Queens College (CUNY), 1967
M.A., Fordham University, 1969

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CHAPTER I

INTRODUCTION

Several recent studies suggest a relationship between creativity and body image. This was the case in a broad study by Holtzman, et. al. (1961) in which the inkblot responses of various groups were factor analyzed. Bachelis (1965) posited that body-field perceptual differentiation (and therefore adequate body image) is essential for creative thinking. While the results of his study were negative when divergent thinking was taken as a measure of creativity, his hypothesis corresponds closely to the hypotheses of various ego psychologists, notably Kris (1952), who view creativity as "regression in the service of the ego," and who, unlike Freud (1910), view creative activity as emerging as the healthy production of a strong and flexible ego which can ease its rules temporarily.

The descriptions which have been offered for the creative individual and for the individual who is able to regress in the service of the ego (for example, Barron, 1958; Schafer, 1958) seem to parallel the description offered by Fisher and Cleveland (1968) for the individual possessing a high barrier-body image. The creative individual is the capable individual who can experience a full range of sensations and emotions without neurotic anxiety. Lowen (1967) sees emotional growth occurring simultaneously with greater body awareness and greater body appreciation.

Fisher and Cleveland note that the individual who can branch out without undue anxiety to explore the obscure and moderately threatening does so because he has a secure foundation or base of operation.

The aim of the present investigation was to study creativity as it relates to body image using several creativity measures in order to sample various aspects of creativity. Further, in view of the central elements in high barrier which seem to be critical components of ego strength as well, a separate measure of the latter was included to determine more fully the extent to which these concepts overlap, and to examine the theory of creativity as adaptive regression. Significant findings relating Barrier, ego strength and creativity would further the theory of creativity as adaptive regression, and would offer the body image, as defined by Fisher and Cleveland (1968), as a conceptual topological model for the strong internal controlling mechanism that enables one's ego boundaries to temporarily blur in this regressive process.

REVIEW OF THE LITERATURE

The Body Image Concept

Early interest in body image was prompted by reports of psychiatric and neurologic patients of various distortions in body perception and sensation which included feelings of depersonalization, denial of impairment of a given organ, hallucinations of the self, variations in sensory receptivity, changes produced by drug ingestion and hypnosis (Bonnier, 1905; Bychowski, 1943; Critchley, 1953; Lhermitte, 1935). Interest was also spurred by the puzzling phantom limb experiences reported by amputees (Pick, 1922). There have been numerous attempts to explain such distortions and to locate a brain site for a body image function by various neurologists (for example, Bollea, 1948; Critchley, 1950; Freed & Paster, 1951; Head, 1926; Schilder, 1935), while Schneider (1954) has posited that the heart is the organ most related to the body image concept.

While not directly speaking of the body image, Freud (1927) stated, "the ego is first and foremost a body ego (p. 31)," and Fenichel (1945) stated, "the body 'image' is the nucleus of the ego (p. 418)." Freud conceived of earliest ego development resulting from the realization of the separateness of one's body from the external world. Only when this separateness of the self from the outside could be understood was further ego development possible. Several psychoanalysts conceptualize that this process begins when the infant is able to differentiate its "self" from its mother, and for this to occur frustration is required; for example, the infant is hungry and the breast is not immediately forthcoming, and the infant eventually recognizes its own hands as a substitute for the breast

(Hoffer, 1949, 1950; Linn, 1955).

In their review of the body image literature, Fisher and Cleveland (1968) note concern with body image or with offshoots of this concept not only in the theories of Freud but also in the theories of other psychoanalysts; they specifically mention Adler, Jung, Reich, and Rank.

After observing that arthritics exhibit excessive concern for their bodies which is manifested as an unusual number of "rather unique" responses to inkblots, Fisher and Cleveland (1968) extended the body image concept into new areas. Responses of arthritics included percepts of hard, protective insulative boundaries or peripheries. These responses seemed to parallel the hard exterior and the great containment of rage and anger often noted in arthritics with severe muscular rigidity and constriction as the price for this intactness. Further studies indicated that patients with other exterior symptoms (e.g., eczema) also exhibited a greater proportion of such responses, but that patients with interior symptoms (e.g., gastrointestinal disturbances) tended to give few such responses.

For purposes of study Fisher and Cleveland (1968) developed two measures of body image. Barrier, refers to assigning "definite structure, definite substance, and definite surface qualities to the bounding peripheries of things (p. 58)." Examples of Barrier include people who are clothed, animals with distinctive skins, references to

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armor, such as an armored tank, etc. Penetration of boundary, or Penetration, refers to boundary peripheries "only in the negative sense of emphasizing their weaknesses, lack of substance, and penetrability (p. 58)." Examples of Penetration include x-ray pictures, a wounded man, a bottomless abyss, an anus, etc. The distinctions in the perceptions of various groups of psychiatric and non-psychiatric patients as well as various groups of normal subjects have been repeatedly demonstrated, using Barrier and Penetration scores as the means for comparison. Fisher and Cleveland also give evidence to support the contention that the body image associated with a given score does not emerge as an adjustment to the illness, but, rather, plays a role in the etiology of the disorder: a given type of body image presumably in some way creates a condition which sensitizes certain areas of the body so that in times of stress these areas are more susceptible to certain physical illnesses.

While the Penetration score appears to have relevance primarily for psychiatric populations, the Barrier score has been related to achievement motivation (for example, Appleby, 1956; Rust & Ryan, 1953), small group behavior (Blake & Mouton, 1956; Cleveland & Morton, 1962; Ramer, 1961), hypnotizability (Fisher, 1963), reactions to stress and adjustment to body disablement (Landau, 1960; McConnell & Daston, 1961, among others), occupational interests (Appleby, 1956), sex and age differences (Fisher, 1964; Fisher & Cleveland, 1968; Gordon, 1964; Hartley, 1964; Jacobsen, 1965; Morton, 1965), and sensory receptivity (A. D. Davis, 1957, 1960; R. C. Davis, 1957; Fisher & Cleveland, 1968), to cite several examples.

Citing the finding that high barrier individuals exhibit greater external receptivity and greater external sensory activity than low barrier individuals, Fisher and Cleveland (1968) speculate that the differences in physiological reactivity are the result of early differences in volitional muscular activity and self expression by high and low barrier individuals. They suggest that this is probably the result of environment and parental rearing practices regarding mastery and autonomy. As children, high barrier individuals are encouraged to express themselves and to achieve goals.

Clinical case studies of high barrier individuals reveal that they generally grow up as members of families in which there is some degree of structuring of values and a setting of positive goals (Fisher & Cleveland, 1968). In contrast, the low barrier individual has an early home life that is relatively disorganized, with definite positive standards clearly lacking. High barrier individuals were also found to view their parents in more definite terms, and this suggests that high barrier individuals were able to develop clear self images because of the definite parental images which served as models for them. Fisher and Cleveland (1968) also found that the parents of low barrier children tended to obtain higher scores on the Fisher Rigidity Score and the Fisher Maladjustment Score (Fisher, 1950) than the parents of high barrier children.

Creativity as Adaptive Regression

Kris (1952), Rapaport (1951), and Schafer (1958) have all described the creative process as a brief partial suspension of ego controls, with a willingness to express secondary process material to primary process influence; i.e., regression in the service of the ego. Since their theoretical work, others (for example, Barron, 1958; MacKinnon, 1964; Maslow, 1962) have attempted to validate the relationship between creativity and ego strength. They view the creative individual as more open to his inner experiences because he has a stronger, more flexible ego, which he can disengage partially, enabling him to experience primary process material without feeling anxious.

The Rorschach has been used as a measure of creativity defined as regression in the service of the ego or adaptive regression. Holt and Havel (1960) devised a method for assessing primary and secondary process thinking on the Rorschach. Their method takes into consideration the amount of primary process manifested on the Rorschach as well as a consideration of whether the individual makes healthy use of his defenses. Goldberger and Holt (1958), utilizing such an approach, were able to predict subject's reactions, adaptive or maladaptive, to periods of perceptual isolation. Responses to the isolation procedure may be taken as a measure of adaptive vs. maladaptive regression, and its intensity. When the subjects were more thoroughly tested and interviewed, it was observed that the adaptive subjects seemed to parallel Kris' (1952) and Schafer's (1958) descriptions of people who are able to regress in the service of the ego (i.e., and to be creative). Pine and Holt (1960), using the Holt and Havel (1960) scoring system tested out the hypotheses that the scores on various tests of imagination (i.e., creativity) would be unrelated to amount of primary process expression but would be related to the effectiveness with which ~~such~~ expression is controlled. Results for their male undergraduate sample indicated that creativity was unrelated to amount of primary process expression but was related to both the tendency to effective control over expressed primary process content and to a combined score (adaptive vs. maladaptive) which took into account both the amount of primary process expression and the effectiveness of control over such expression. In a follow up study by Pine (1962) involving a group of male actors, none of the correlations were significant.

For their female undergraduate sample, Pine and Holt reported that none of the specific creativity measures were significantly related to either the control measure or to the adaptive regression measure, although the overall creativity score correlated .52 ($p<.05$, two-tailed test) with the control measure. The scoring procedures for such measurements of creativity defined as adaptive regression are exceedingly elaborate and therefore somewhat impracticable. A more simplified operational definition of creativity or adaptive regression makes use of Human Movement (M) responses to inkblots.

Studies significantly relating artistic creativity to M are numerous (such as, for example, Anderson & Munroe, 1948; Hersch, 1962; Rawls & Slack, 1968), but studies relating scientific creativity to M fail to provide such findings (Roe, 1951, 1953). In a study involving the Franck Drawing Completion Test, Bonifacio and Schaefer (1969) found M significantly related to creativity in the art and writing fields for both boys and girls; no relationship was found for boys in the scientific fields. They suggest that M may selectively tap thought processes characteristic of those engaged in artistic expression rather than in scientific areas. Related to this is Stark's (1965) division of creativity into two distinct forms: expressive, artistic, inspirational, which is related to M; and an associational, novelty-problem solving type, which is unrelated to M but which may be related to scientific work or thought.

Piotrowski (1960), while not clearly dividing creativity into separate phases, does so implicitly, when he notes that what is termed creative can have several meanings. He also suggests that the protocols of psychologists, psychiatrists, social workers, novelists, artists, and others strongly interested in psychosocial relations are high in M, and possibly, "the creativeness indicated by the M reveals itself primarily in interpersonal relations (p. 143)." From this, one might speculate that just as there may be different types of creativity there may be different intrapsychic processes called upon in the production of these different types of creativity. The significance of this bifurcation of creativity as it may relate to barrier is considered below.

The Relationship Between Body Image and the Creative Process

The developmental patterns of high barrier individuals seem to parallel the factors offered by Kris (1952) and expanded upon by Schafer (1958) as favoring regression in the service of the ego. These factors are: 1) the presence of a well developed set of affect signals, 2) a secure self (well established ego identity), 3) relative mastery of early traumata, 4) relative degree of moderation as opposed to great severity of superego pressures, and flexibility rather than rigidity of defense controls, 5) pattern of adequate trust and mutuality in interpersonal relations, especially in the early relationship with the mother, and 6) self-awareness and personal and effective communication to others. Several of these items, notably the first two, may be interpreted directly in body image terminology, and the remaining four items have been shown to be characteristic of high barrier individuals, as has been alluded to earlier. The fifth and sixth of these items, however, take on special significance when one recognizes that

> combined groups consisting of those occupations which involve communicating with and about people [such as psychologists, artists, and anthropologists] are significantly higher in their Barrier scores than combined groups of occupations that focus on things and abstract concepts [such as chemists, physicists, biologists, and mathematicians] (Fisher & Cleveland, 1968, p. 169).

Such a finding complements the speculations of Piotrowski (1960) on the meaning of M, noted earlier. Should a relationship be found in the present study between Barrier and creativity it would follow that the creativity involved probably would be the creativity most associated with artistic and writing endeavors, and communication, rather than with scientific work or thought.

Barron (1955) writing on the disposition toward originality asserts that original or creative individuals possess a strong need for personal mastery over all experiences. One aspect of this, self regulation, first appears, according to Barron, as a resolution of the anal crisis. This can occur, however, when the pressures to conform are not overwhelming; the less rigid and more adaptive patterns of the parents of high barrier children, noted above, would appear more conducive to such a successful resolution of this conflict. According to Barron, it follows that creative people are more self-assertive, independent, less suggestible. Fisher and Cleveland (1968) have similarly described high barrier persons as more self-assertive, independent, less suggestible. They go on to cite studies indicating that high barrier individuals appear to possess superior ability to deal with stressful situations (for example, Landau, 1960; Schultz, 1966; Shipman, 1965; Sieracki, 1963). They then speculate that an individual possessing definite boundaries has a "sense of security about his 'base of operations'," or his body, and that this exerts a stabilizing effect in coping with frustrations and stresses. Such a sense of internal security may also be the requisite for adaptive regression, in that the mature verbal individual is not accustomed to engaging in primary process thinking, so that such thinking has, at the very least, a stressful potential. Although Fisher and Cleveland (1968) do not directly link superior body image and adaptive regression, they discuss the "striking parallel" between the physical patterns of the individual described by Lacey (1959) as "receptive to the environment" and the high barrier individual who is "communicative and prepared for interaction." Lacey draws a parallel between high skin conductance (as is observed in high barrier individuals) and openness to experience.

It should be noted here that low barrier people may be viewed by some as "less confined to main channels and less willing to submit to broad societal expectancies ...[and that in a sense] they are freer than high Barrier persons

Fisher & Cleveland, 1968, p. 203)." Fisher and Cleveland note that low barrier individuals may indeed "experience life outside of its usual mold (p. 204)," but if this is the case, it occurs because low barrier individuals are apparently somewhat disordered persons, and when they are open to experience it is in a maladaptive, disruptive way.

Differences in the barriers of subjects who underwent periods of sensory deprivation may account for the marked discrepancies in the experiences reported by these subjects. Clarkin (1970) found that maladaptive reactions to hypnagogic regression included reports of anxiety-producing hallucinations, and that adaptive reactions included reports of positive, enjoyable experiences of visual imagery. Fisher (1962) considers these negative hallucinations as anxiety-producing breakdowns of the tenuous boundaries between the self and the environment in low barrier individuals.

Silverman, et. al. (1962) note that this phenomenon represents a breakdown in synthetic ego functions when the ego does not get its sensory input and withdraws its cathexis from the boundaries. West (1962), in similar fashion, describes dreams. Related to this is the view of Freedman, et. al. (1962), who note that subjects who report positive dream imagery under sensory deprivation are more likely to report dreams after periods of normal sleep, and to have a history of hypnagogic imagery.

Generally, then, it appears that these visual experi-

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ences may appear either as a positive process, (sometimes interpreted as regression in the service of the ego), or as a negative process, as is the case for schizophrenics whose barrier score is low(except for paranoids, Fisher & Cleveland, 1968), and who experience hallucinations because of the failure to differentiate the self from the environment at various times (Des Laurier, 1962). It follows from this that while people of moderate (as opposed to high barrier or ego boundary do not hallucinate, they still may lack sufficient barrier to serve as a base of operations for adaptive regression.

Bachelis (1965) has tested the hypothesis that body-field perceptual differentiation is an essential for creative thinking, and that artificially disturbing this would impede creativity. His findings are negative when divergent thinking is used as the measure for creativity and the body image dimensions of Barrier and Penetration are also utilized. Bachelis nevertheless suggests that additional studies be undertaken, involving a broader sample of subjects with respect to age, sex, and educational level, in addition to other measures of creativity, such as ratings by expert judges in special areas such as art or music.

In a factor analytic study involving a very broad sample of subjects including children, normal adults, and many psychiatric samples of various ages, Holtzman, et. al. (1961) note that the barrier scores consistently had a high loading on a factor related to "well organized ideational activity, good imaginative capacity, well differentiated ego boundaries, and awareness of conventional concepts (p. 171)."

Regression in the service of the ego clearly involves altered states of consciousness and thereby clearly implies changes in ego boundaries; these changes can occur only because the intrapsychic apparatus is sufficiently strong to temporarily blur without permanent or long lasting negative effects. Gutman (1961), in an interesting theoretical discussion, uses these concepts to relate creativity and body image, but in a slightly different context. He postulates that creation and invention represent man's attempt to extend his own abilities beyond their limits. Because of this, he states:

> The elements used in the creative process must, in some way, become part of what Snygg and Combs call the "phenomenal self" or what Schilder has termed the "body-image," before man can subject them to the process of creative synthesis, because the products of creativity serve to enlarge the phenomenal self or the body-image (p. 11).

Tools and various inventions, such as lenses, radios, and other electrical equipment represent such extensions of the body image. Music and art extend the body image concept by expanding and enriching what man can sense through audition and vision. According to Gutman, for this to occur, "an extraordinary coupling between psyche and soma (p. 29)" is required.

PURPOSE OF THE STUDY

The overall purpose of the present study was to investigate the relationship between creativity and body image. Several measures of creativity were utilized in order to sample creative approach or process, creative product, and biographical factors related to creative achievement. Creativity as adaptive regression was examined, and well delineated body image (high barrier), as defined by Fisher and Cleveland (1968) and similarly by Holtzman, et. al. (1961) was evaluated as the tangible topological representation of the well integrated ego which permits adaptive regression by temporarily and selectively blurring its boundaries. Since many aspects of high barrier seem to encompass important attributes of ego strength, an independent measure of the latter was included in the battery of tests in order to evaluate the extent to which these two concepts correspond.

HYPOTHESES

One would expect theoretically that high barrier individuals are more open to inner experience, better equipped to regress in the service of the ego, and are therefore more creative. Therefore it was hypothesized that:

1. High barrier subjects will obtain higher scores than low barrier subjects on the Experience Inquiry (Fitzgerald, 1966).

2. High barrier subjects will obtain higher scores than low barrier subjects on the Remote Associates Test (Mednick & Mednick, 1967).

3. High barrier subjects will give a greater number of "M" responses than low barrier subjects to the Holtzman Inkblots (Holtzman, et. al., 1961).

Additionally, it was anticipated that the biographical history of high barrier individuals parallels that for individuals who are creative in the artistic sense. Therefore it was hypothesized that:

4. High barrier subjects will obtain higher scores than low barrier subjects on the creative art and writing scale (CrAW) of the Biographical Inventory - Creativity (BIC) (Schaefer, 1970).

Further, in that there appeared to be common elements in the concepts of high barrier and ego strength, it was anticipated that high barrier would be associated with ego strength. Additionally, since it was hypothesized that high barrier is associated with creativity the supposition followed that high ego strength is also associated with creativity. Such a presumed relationship is also the basis for the theory of creativity as adaptive regression. Therefore, the following supplementary hypotheses were made:

5. A significant positive correlation will exist between Barrier scores and scores on the Ego Strength Scale.

6. A significant positive correlation will exist between scores on the Ego Strength Scale and scores on the Experience Inquiry.

7. A significant positive correlation will exist between scores on the Ego Strength Scale and scores on the Remote Associates Test.

8. A significant positive correlation will exist between scores on the Ego Strength Scale and the number of "M" responses given to the Holtzman Inkblots.

9. A significant positive correlation will exist between scores on the Ego Strength Scale and scores on the creative art and writing scale (CrAW) of the Biographical Inventory - Creativity (BIC).

CHAPTER II

METHODOLOGY AND PROCEDURE

Subjects

The subjects of this study were paid, male undergraduate volunteers from Fordham University. The majority of subjects had completed only one psychology course or were taking their initial psychology course; the others had completed a maximum of two psychology courses. The subjects were informed that participation in the study might require their presence on as many as three occasions, depending on the results of the initial session, and that they would have to be present at all sessions required of them in order to receive payment. They were assured that there would be several alternative times on which they could return. They were also cautioned not to begin participation in the study if it appeared unlikely that they could return for the subsequent sessions and were informed of a payment schedule of three dollars for the first session, four dollars for the second session, and three dollars for the third session. They were informed that the first and second sessions would each last approximately 90 minutes, and that the third session would last approximately 30 minutes. In addition, they were told that they would receive a general statement of the purpose and results of the study once the research was completed.

At the first testing session, subjects were asked to complete a brief questionnaire on drug usage, (coded to assure anonymity), and from an initial pool of 144 subjects, 39 subjects considered to be "hard drug users" were eliminated from further participation in the study. "Hard drug users" were defined as current users of heroin, cocaine, and psychedelics. Also eliminated from the study were several subjects who stated that they had previously used these drugs but had given them up within the past year.

Five subjects who were asked to return for the second part of the study failed to appear for the second session, leaving a total of 100 subjects.

Measures

I Holtzman Inkblot Technique (HIT)

The HIT was developed to overcome psychometric shortcomings of the Rorschach. It is made up of two parallel forms, 45 cards each, in which the total number of responses is controlled for by requiring only the first response to each card. A wide range of scores is made possible by scale weights assigned to each major scoring variable, as well as by the intent in the design of the test which was to allow for an even richer amount of qualitative material than is available in the Rorschach (e.g., inclusion of asymmetric inkblots). Considerable normative data on all of the scoring categories is available. Holtzman, et. al. (1961) cite a study (Bock & Haggard, 1963) which was still in progress at the time their own book went to press in which

72 high school students were administered both the Rorschach and Holtzman inkblots twice. The Holtzman inkblot protocols were scored by the standard Holtzman scoring system and the Rorschach inkblot protocols were scored by Beck's (1949) system of analysis. Holtzman, et. al. note that when a correction is made for the varying number of responses on all of the determinants (except for R and FA) and when a correction is made to link Holtzman's M (which takes into account all movement) to Beck's M (which takes into account only human movement) (HM), eight determinants in the Holtzman scoring system (Rejection, Location, Color, Shading, Human Movement, Form Appropriateness, Human, and Animal) are "sufficiently comparable in a priori definition" to justify direct correlation to the corresponding determinants on Rorschach protocols scored by Beck's system. In the study cited by Holtzman, et. al. the obtained correlations between corresponding determinants ranged between .30 and .79, all significant beyond the .01 level. Making reference to the various groups that they studied and commenting on the validity of the inkblot variables in the HIT, Holtzman, et. al. further note:

> Whether scores are considered one at a time as in the tables of percentile norms or all together in a multivariate analysis, the intergroup differences are ... generally consistent with earlier findings using the Rorschach (p. 253).

This further suggests that the two tests tap the same areas of functioning and that there is a high communality in the meaning of a given determinant on either inkblot test.

Form A of the HIT is sold routinely by The Psychological Corporation for group administration. Fisher[1] states, "that with articulate, intelligent subjects group administration of the Holtzman blots is as good as individual administration," provided not more than 25 or 30 subjects are tested at one time. Holtzman[2] concurs on this position, provided that appropriate instructions adapted for group administration are exercised.

A- Body Image (Barrier)

The research generated by Fisher and Cleveland's (1968) initial development of the Barrier scale makes it clear that this scale is of sufficient interscorer agreement, reliability, and validity for clinical and research applications in the measurement of a definite personality trait.

Fisher and Cleveland note inter-rater reliabilities for Barrier in the .80's and .90's and Holtzman, et. al. (1961) note an average interscorer reliability for Barrier of .84. Inter-rater reliability between the writer and an experienced psychologist on a random sample of 16 inkblot protocols was .91. All subsequent scoring was done by the writer.

Holtzman, et. al. (1961) offer odd-even reliability coefficients for their Barrier scores on groups, (which include five year olds and other children of various school grades,

[1] S.Fisher, personal communication, November, 1971

[2] W.Holtzman, personal communication, December, 1971

firemen, housewives, college students, various psychiatric groups, etc.), which range between .47 and .85, (in the .60's to .71 for college subjects). In the current study, the Fisher and Cleveland (1968) criteria for scoring Barrier were employed (Appendix A). The Holtzman measure for Barrier adheres closely to that of Fisher and Cleveland. The data elicited in this study was compared to the Holtzman norms, and is discussed later on.

B- Human Movement (M)

As noted earlier, several methods utilize inkblots in the assessment of adaptive regression or creativity. Such methods are exceedingly elaborate and somewhat impracticable to employ. A more simplified operational definition and measure of adaptive regression makes use of Human Movement (M) responses to inkblots. Rorschach (1949) stated that the M response represented "the capacity for inner creation" and felt that it was indicative of a receptivity to artistic inspiration. As already noted, findings in the literature clearly point to M reflecting creativity, if only in a specific and limited sphere.

The evidence given by Holtzman, et. al. (1961) that the scoring categories on the HIT are comparable to the scoring categories on the Rorschach would imply that M on the HIT is similarly indicative of creativity. Several studies relating creativity and M on the HIT offer further justification for this. One such study is that by Richter and Winter (1966).

In a study involving 130 female undergraduate students, they noted that the higher Human Movement scores differentiated between "creatives" and "non-creatives" at the .0005 level when creativity was defined on the basis of scores on the Myers-Briggs Type Indicator (MBTI). The MBTI is not a direct measure of creativity; it is, rather, a measure of Jungian typology. In the Richter and Winter study, however, creativity was defined on the basis of high scores on the Intuition and Perception subscales of the MBTI:

> The creative Ss were characterized by high scores on _intuition_, openness to an indirect perception of the possibilities inherent in situations, and _perception_, openness to experience from within and without, not closing one's mind by making premature judgments (p. 63).

In the present study, in order to score an M response for creativity ("M"), Kalsched's (1972) scoring procedures were adopted. Following Kalsched, in order to qualify for "M" three sequential criteria must be satisfied: 1) Human Content, 2) Form Appropriateness, and 3) Movement. This is described more fully in Appendix B. However, unlike Kalsched who utilized only 20 selected inkblots, the subjects in the current study were administered all 45 inkblots of Form A of the Holtzman inkblots.

II Experience Inquiry

This is a 56 item self-report inventory developed by Fitzgerald (1966) on 143 college students (62 males and 81 females). The inventory operationalizes Schachtel's (1959) modification of Kris' (1952) concept of regression in the service of the ego. Instead of "regression", Schachtel sees "openness to experience". Fitzgerald (1966) paraphrases Schachtel's (1959) description of this as, "a loosening of fixed anticipations and sets so that one approaches the objects of his experience in different ways, from different angles (p. 656)." According to Schachtel, for this to occur, the individual must not be bound by any rigid rules. Taken in this way, there is no regression in the primitive sense; instead, the individual progresses, and is able to experience things with all of their subtlest nuances, without experiencing any undue anxiety.

Thirty-two items come from the work of As, et. al. (1962) who developed a scale to measure hypnotic susceptibility. These items and 24 additional items cover seven areas: 1) Tolerance for Regressive Experiences, 2) Tolerance for Logical Inconsistencies, 3) Constructive Use of Regression, 4) Altered States, 5) Peak Experiences, 6) Capacity for Regressive Experiences, and 7) Tolerance for the Irrational. Split-halves reliability, corrected by the Spearman-Brown Formula was .85 for the total sample, with a Kuder-Richardson Formula 20 resulting in a value of .81. Item analysis indicated that 43 of the items correlated with the total score significantly at the .01 level, 5 items at the .05 level, and the remaining items, though not significantly correlated, were in the positive direction and included for increased bandwidth. The scale is therefore internally consistent. A factor analysis yielded three oblique clusters: 1) Openness to experience and altered states of consciousness, with a tolerance and capacity for regressive experience, 2) A desire for closed, orderly predictable, explainable environment and an intolerance for uncontrolled states of consciousness, and 3) Intolerance for unusual personal and interpersonal experiences. Cluster 1 correlated negatively with clusters 2 and 3, which were positively correlated with each other. Such findings are, of course, in line with the theory.

High scorers on the Experience Inquiry were found to be more capable than low scorers of displaying regressive shifts in thinking, in object sorting, and word association, when working under instructions to give responses they thought "unregulated" unconventional persons would give. The Experience Inquiry is also negatively correlated with the R scale of the MMPI, which measures an individual's tendency to use repression and denial. A copy of the Experience Inquiry is presented in Appendix C.

III Biographical Inventory - Creativity (BIC)

The BIC is a multiple choice instrument developed especially to identify creative adolescents on the basis of their experience in the formative years and by the patterns of important choices made by these individuals during their lives. Items on the BIC are divided into four subscales: family history, educational history, avocational activities, and miscellaneous. The initial development of the BIC was limited to males, but subsequently additional scales for females were developed. The (revised) BIC (male edition) consists of 125 items. The BIC is made up of two scales of creativity: a scale for creativity in art and writing (CrAW) consisting of approximately 100 items, and a scale for creativity in mathematics and science (CrMS) consisting of approximately 50 items; there is some overlapping of scales.

The BIC is an empirically keyed inventory, developed and cross validated on a sample of 400 high school boys in the New York metropolitan area (Schaefer & Anastasi, 1968). Teachers' nominations supported by specific creative productions was the criterion in the cross validation on the initial scoring keys. At that time all validity coefficients (point biserial) were significant beyond the .001 level, the validity coefficients for males being .64 and .35 for the CrAW and CrMS scales, respectively, (and .34 and .55, respectively, for females). Schaefer (1970) notes that the highly significant results were obtained even though factors in the selection procedure tended to reduce the differences between the creative and control groups (e.g., grade point average, course selection, etc.). Schaefer also notes, "As a result of improvements made in the early form, there is reason to expect that the revised BIC will prove even more valid against a criterion of real-life achievement (p. 7)."

The BIC may be administered in group fashion; there is

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no time limit but the average person completes it in about 20 minutes. A copy of the BIC is presented in Appendix D.

IV Remote Associates Test (RAT)

The RAT is based on Mednick's (1963) definition of creative thinking in associative terms:

> The test items are intended to require the testee to perform creatively. That is, he is asked to form associative elements into new combinations by providing mediating connective links. Since the test situation is contrived, the combination must meet specific criteria that are experimenter imposed (p. 590).

The RAT has several forms (Mednick & Mednick, 1967), two of which are specifically designed for college subjects. The test consists of 30 items, and subjects are given forty minutes to complete the task. The test items consist of sets of three words drawn from mutually remote associative cluster, and the subject is required to find a fourth word which could serve as an associative link between the disparate words, such as "cheese" to link "rat," "blue," "cottage" (Mednick, 1963).

Numerous studies are available in the literature that furnish evidence of the ability of the RAT to differentiate creatives from non-creatives. Karp (1960) and Kowalski (1960) found RAT scores directly related to originality and quantity of anagrams constructed using the word "generation" as a test word. Mednick and Halpern (1962) found correlations between RAT scores obtained by students in an architecture course and faculty ratings of creativity to be .70, significant beyond the .01 level. Odd-even reliability is in the high .80's or .90's. The RAT is thus a reliable and valid measure of some aspects of creativity. A copy of the RAT (College Form 1) is presented in Appendix E.

V Barron's Ego Strength Scale

This instrument, developed by Barron (1953) consists of 68 items from the MMPI and was originally developed on 33 psychoneurotic patients as a measure to predict improvement in therapy. Numerous studies in the literature (for example, Greenfield, et. al., 1959) note that the Ego Strength Scale successfully predicts length of recovery period for physical ailments as well as for psychiatric ailments. Additionally of note are a series of studies which indicate that, in a group involving normals and psychiatric patients, subjects high in ego strength, as defined by the scale, were better able to respond to arousal and better at getting back to normal (Greenfield, et. al., 1963; Roessler, et. al., 1963, 1964). Korman (1960) discovered that high Ego Strength subjects were able to discriminate more readily than low Ego Strength subjects when a task was difficult.

In order to determine the test-retest reliability of the Barron Ego Strength Scale when given out of the context of the MMPI, Gaines and Fretz (1969) tested two groups of college males and re-tested them after a two month interval. Test-retest correlations were .75 and .81; these values are equivalent to those reported when the scale is administered in the context of the MMPI. Appendix F presents a copy of the Ego Strength Scale.

Procedure

First Testing Session. Following the completion of the brief questionnaire on drug usage (Appendix G) the HIT was administered in group fashion. The standard procedures for group administration developed by Swartz and Holtzman (1963) were employed (Appendix H). Thirty-five millimeter color slides of each of the 45 inkblots from Form A of the HIT were projected on a white screen in a partially darkened room. Seating was arranged in such a way that all subjects had a good view of the screen. The number of subjects tested at the various testings ranged from 12 to 28, which conforms to the limit of 25 to 30 subjects which had been suggested by Fisher(1).

Following the completion of the first session, the inkblot protocols were independently scored for Barrier and Movement ("M"). The 25 subjects who placed in the highest quarter on Barrier (scores of at least 12) were defined as the "high barrier group" and the 25 subjects who placed in the lowest quarter, (Barrier scores of 7 or less), were defined as the "low barrier group." Table 1 presents the means and standard deviations of the two criterion Barrier groups.

TABLE 1

MEANS AND STANDARD DEVIATIONS FOR THE TWO CRITERION BARRIER GROUPS

(N=25 per group)

	High Barrier Group	Low Barrier Group
Mean	12.96	5.28
SD	1.15	1.25

Second Testing Session. The subjects who constituted the two contrasting Barrier groups were contacted to return for the second session, at which time they were again tested in group fashion, and asked to complete the RAT (College Form 1), Barron's Ego Strength Scale, the BIC, and the Experience Inquiry; in each case, standard administrative procedures were utilized.

Third Session -- The Interview. Structured interviews were conducted with 10 subjects from each of the two contrasting Barrier groups, selected at random, in order to further assess how the subject views his body. The interviews lasted approximately 20 minutes. Appendix I indicates the questions asked of the subjects during the interviews.

CHAPTER III

RESULTS

Before assessing the results it is important to consider the means and standard deviations of the inkblot determinants in order to ascertain whether the subjects of this study were a representative sample and, even more importantly, to examine whether group administration may have in some ways influenced these determinants. This data is presented in Table 2 along with corresponding data for comparable groups of subjects tested individually, and furnished by Holtzman, et. al. (1961). In order to compare the Movement data obtained in the current study to the Holtzman Movement norms, it was necessary to rescore the Movement responses by the Holtzman scoring criteria which include all types of movement -- human or otherwise -- regardless of Form Appropriateness.

TABLE 2

BARRIER AND MOVEMENT DATA OF THE CURRENT STUDY COMPARED TO THE HOLTZMAN DATA

Barrier				Movement			
Current Study (N=100)		Holtzman Data (College Students)		Current Study (N=50)		Holtzman Data (College Students)	
Mean	SD	Mean	SD	Mean	SD	Mean	SD
9.1	3.0	7.2-9.0	4.0-4.3	43.1	14.2	38.6-46.0	15.7-16.4

Examination of Table 2 indicates that the statistics for Barrier in the current study do not differ greatly from the values given by Holtzman, et. al. (1961) for undergraduate students, and that the statistics for Movement (M) for subjects in the current study are also in agreement with the values given by Holtzman, et. al. when they are rescored in this fashion. Since the Movement and Barrier statistics of the current study do not differ greatly from the Holtzman values, it appears that the subjects of this study constituted a representative sample and that group administration did not greatly influence the statistics. This determined, a clearer inspection of the test results can now be made.

The four main hypotheses predicted that high barrier subjects would obtain higher scores than low barrier subjects on the various creativity measures. The main hypotheses were tested by means of t-tests comparing the mean scores of the two contrasting groups of 25 subjects each, and is presented in Table 3. As Table 3 indicates, of the four main hypotheses, the third and fourth hypotheses attained statistical significance and were therefore supported.

In addition to the four main hypotheses, five supplementary hypotheses were made. Hypothesis 5 predicted that there would be a significant positive correlation between Barrier scores and scores on the Ego Strength Scale. Hypotheses 6 through 9 predicted that there would be a significant positive correlation between scores on the Ego

Strength Scale and scores on each of the various creativity measures. As Table 4 indicates, none of the supplementary hypotheses attained statistical significance, and the supplementary hypotheses were therefore not supported.

TABLE 3

COMPARISON OF HIGH BARRIER AND LOW BARRIER SAMPLES ON THE FIVE MAIN TESTS

(N=25 per group)

	High Barrier		Low Barrier		
Measure	Mean	SD	Mean	SD	t
Experience Inquiry	32.84	7.40	33.20	7.54	-0.17
RAT	14.12	4.56	13.00	4.61	0.86
"M"	23.68	8.25	18.16	7.87	2.42**
BIC- CrAW	105.24	16.54	96.40	13.40	2.08*

*p<.05
**p<.02

TABLE 4

INTERCORRELATION MATRIX OF BARRIER, EGO STRENGTH AND THE CREATIVITY MEASURES

(N=50)

Variable	Barrier[a]	Ego Strength	Experience Inquiry	RAT	"M"	BIC-CrAW
Barrier[a]	1.00					
Ego Strength	-0.02	1.00				
Experience Inquiry	-0.02	-0.14	1.00			
RAT	0.12	0.03	-0.03	1.00		
"M"	0.33*	-0.43**[b]	-0.10	0.08	1.00	
BIC- CrAW	0.29*	-0.02	0.48**	0.21	0.21	1.00

[a] All correlations with Barrier are point biserial

[b] Statistically significant but not in the direction anticipated by hypothesis

*$p<.05$
**$p<.01$

CHAPTER IV

DISCUSSION

Two of the four main hypotheses pertaining to a relationship between Barrier and creativity were supported: Barrier was found to be significantly related to "M" and to BIC-CrAW but was not found to be related to the Experience Inquiry or to the RAT. The findings, therefore, partially support the hypothesized relationship between Barrier and creativity. Perhaps, the failure to obtain a significant relationship between Barrier and the RAT may be accounted for, to some degree, by the "consistent finding" that RAT scores correlate negatively with grade achievement (Mednick & Mednick, 1967) in light of the observation that high barrier individuals are achievement oriented (Fisher & Cleveland, 1968). In contrast, the fact that the BIC was empirically keyed on the basis of achievement (i.e., teachers' nominations supported by specific creative productions) may have contributed to the significant finding relating Barrier to the BIC- CrAW. On this basis, it could be theorized that the creativity manifested by high barrier individuals may reflect both a creative potential and a drive for achievement or recognition. It follows from this that high barrier individuals will not seek to be creative in personal channels, but, more likely, in channels through which they will receive recognition for achievement.

The hypothesized relation between Barrier and creativity appears to have been partially confirmed. None of the supplementary hypotheses, however, were supported, thereby tending to cast doubt on the theory of creativity as adaptive regression. Surprisingly, "M" and Ego Strength even correlated significantly negatively (-.43, p<.01). The failure to find a relation between Barrier and Ego Strength was also surprising. On this point, Fisher and Cleveland (1968) have observed that the "good adjustment" associated with boundary differentiation in normal persons easily leads to the assumption that degree of psychopathology and Barrier are linked. They note, "Previous findings seemed to point in this direction, but increasingly it is becoming obvious that this is not the case (p. 392)." To this writer it appears likely that high barrier may be a necessary, though not a sufficient, condition for ego strength. Fisher and Cleveland also note the need for clarification on this issue, referring to it as "one of the most potentially interesting and profitable tasks to be undertaken in future body-boundary research (p. 393);" and on this point the writer concurs.

Another explanation for the contradictions in the findings of the various studies which have attempted to link Barrier and ego strength raises the possibility that high barrier does not reflect ego strength but reflects, instead, the specific defensive style which is associated with drive orientation and high motivation toward mastery of problems. These are traits which are important in coping adequately with frustrations and stress. Such a view is put forth by Fisher and Cleveland (1968). Noting how people develop psychosomatic symptoms at different locations on the basis of their body image boundaries, they speculate that the interior symptoms associated with low barrier individuals may represent an earlier form of body defense than do the exterior symptoms associated with high barrier individuals. They ask if it is possible that

> the typical individual in the interior-symptom group was exposed to stresses which required defensive body reactions at a period early in life before he had mastery over, or a body-image concept of his body exterior? (pp. 83-84)

According to Fisher and Cleveland, at this early age, the body interior may represent the clearest portion of the still hazy developing body image and once this defensive pattern is established it may fix the individual's attitudes about his body "at a point where the concept of defensive mastery of the body exterior had not yet developed (p. 84)." At a later point, Fisher and Cleveland stress that high barrier individuals are not necessarily superior to low barrier individuals in terms of adjustment: the two groups merely differ in orientation and style. Referring to how one rates the life styles of high and low barrier individuals, they note that

> it is a matter of viewpoint and of values.... If one focuses on conventional achievement and being effective in terms of usual societal norms, ... the high Barrier person may stand out as superior. However, one may ... [view] low Barrier people as less confined to main channels and less willing to submit to broad societal expectancies ... [and therefore] freer than high Barrier persons (p. 203).

An alternative interpretation of the surprising finding regarding "M" and ego strength involves the Ego Strength Scale. While discussing a particular study of his which involved "healthy, well-functioning men of generally superior abilities," Barron (1956) observes that significant correlates of the Ego Strength Scale were "a cluster of traits seemingly more related to egocentrism: competitiveness, marked power-orientation, and disregard of the rights of others (p. 579)." Barron goes on to raise the possibility of "inadequacies in the scale or ... some theoretical difficulties in relation to the concept itself ... [because a strong ego is] one which is well integrated with a rational superego (p. 582)," which was obviously not the case for at least some of Barron's subjects. Still, Barron notes that in the various studies involving the Ego Strength Scale, "Most of the correlates of the scale seem to fit in well with the concept of ego-strength as one generally finds it used in the psychoanalytic literature (p. 579)." The concept of ego strength is fundamental to psychoanalytic theory. It would appear, however, that the Ego Strength Scale is limited in that it shows convergent validity but fails to show divergent validity at the upper extreme.

There was marked variability in the intercorrelations of the four creativity measures. Also of note is the significant correlation obtained between Barrier and the BIC, and the failure to obtain a significant correlation between Barrier and the Experience Inquiry even though the correlation between the BIC and the Experience Inquiry was the highest single correlation in the matrix. These findings at first suggest that the correlation between the BIC and the Experience Inquiry may reflect common method variance rather than common trait variance; a more likely explanation for the anomalies in the correlation matrix supports the notion that the trait of creativity is not a functional unity (Campbell & Fiske, 1959), and is, as many have theorized, any of several conglomerations of a number of more basic intellectual and attitudinal traits.

While the overall results of the current study are encouraging, and tend to support a relation between Barrier and creativity, it is important to review the meaning of the human movement (M) response. As Klopfer, et. al. (1954) note, some view M as a reflection of capacity for creativity or a creative process while others view M as a reflection of the ability to produce creatively (creative product); Rorschach (1949) assumed a negative correlation between M and overt (motor) behavior, while Piotrowski (1957) takes the opposite view and sees a positive correlation between M and overt behavior so that a great number of M's reflects a strong self-steering mechanism and an interest in interpersonal relations:

> The presence of M always implies interest in people: the more numerous the M and the greater their qualitative variety in a subject's record, the greater is the latter's interest in people (Piotrowski, 1957, p. 143).

According to Schachtel (1967), empathy comes from projection and when someone sees movement in inkblots he is projecting his feelings into the object in the blot. The projection may be positive (true empathy) or negative (a distortion). While not so described by Schachtel, such a distortion seems to reflect a blurring of ego boundaries (or of body image boundaries).

After stressing that M is related to the ability to empathize with others, Schachtel then goes on to say that it is this same capacity that enables one to appreciate the artistic or the creative -- to be creatively receptive if not creatively productive. This view is similar to Piotrowski's (1957, 1960) view that there are many ways in which creativity can be defined and that the creativity represented by M is related to interpersonal relations. This type of creativity is probably the creativity which is being tapped on the BIC- CrAW, as well. However, the healthy empathic quality generally assumed to be reflected by the presence of M seems to be tapping something very different from what Barron (1956) observed in the Ego Strength Scale in his sample of well-functioning men.

Piotrowski (1957) notes that there may be a difference between the optimal and the maximal number of M's and he goes on to note that one should not consider M in isolation, but should also consider the other determinants. Schachtel (1967) notes that it is the quality of M, not only the number per se that is of interest. For example, is the movement flexor movement or extensor movement? Also important is the amount of energy invested in the movement, whether the figure is seen alone or with someone else, and if the figure is not seen alone whether it is in a hostile or a friendly relationship with the other figures in the blot, etc.

The value of examining M clinically is also reflected in Holtzman, et. al.'s (1961) finding in a factor analytic study that M has a high loading on the first and third factors. According to Holtzman, et. al., a high loading on the first factor "would be indicative of well organized, ideational activity, good imaginative capacity, well differentiated ego boundaries, and awareness of conventional concepts (p. 171)." In contrast, a high loading on the third factor "would be indicative of disordered thought process coupled with an active though disturbed fantasy life (p. 171)." Holtzman, et. al. also state that Pathognomic Verbalization is the best single variable for defining the third factor although the loadings are often higher on Anxiety and Hostility. The first factor usually accounts for more of the variance than any other factor, but for the two college groups administered Form A by Holtzman, the third factor accounted for more of the variance.

Unlike Holtzman's data, in the current study, in order to qualify for a movement score, the response had to include only human movement and be considered of "fair" or "good" Form Appropriateness. Because of the qualifications in the definition of movement, the inkblots were scored independently for Pathognomic Verbalization, Anxiety, and Hostility, and rank difference correlations between "M" and these determinants were computed as .27 ($p<.10$), .28 ($p<.10$), and .35 ($p<.02$), respectively. These correlations indicate that despite the qualifications placed on "M" in the current study, while much of the variance of "M" is reflected in the first factor, a sizable proportion of "M"'s variance is still accounted for by its communality with Pathognomic Verbalization, Anxiety, and Hostility. This finding is in accord with the observation that the correlation of .33 obtained between "M" and Barrier is within the range of correlations obtained by Holtzman for college samples, (ranging between .26 and .37). It would appear that even when a consideration is made for Form Appropriateness and Human Content, "M" may have different significance or meaning for different subjects, and that the thought processes associated with it may imply superior ego integration (i.e., creativity) but may instead, at times, reflect unhealthy, deviant thought processes.

Only minor differences were elicited between the two Barrier groups in the interviews. The sample size is probably too small to allow for statistical analysis. Generally, the high barrier subjects made more references to their exterior organs and the low barrier subjects made more references to their internal organs. However, the focus of the high barrier subjects on their exteriors appeared to be a positive one: when asked to name a weakest organ, seven subjects from the high barrier group named an internal organ and two named an external organ; in contrast, four subjects from the low barrier group named an internal organ and three subjects named an external organ. It should be noted here that several subjects, in answer to the first two questions regarding how they viewed their bodies, spoke only in positive terms, but later, either after spontaneously mentioning a physical ailment or after being asked about a weak organ, acknowledged their concerns for this organ, even labeling their thinking as "excessive" or hypochondriacal."

Virtually no difference was elicited between the two groups in terms of the subjects' most important organ. Five subjects from each group named their head, brain, or mind as the most important organ, and several subjects from each group named their eyes or their hands. There appeared to be no difference between the two groups in answers to the sentence completions. Most frequently, subjects' responses dealt with acne, the need to keep the skin clean, and the idealized quality of a girl's soft skin. These responses seem to be determined, at least in part, by the fact that the subjects are all adolescent males, who either have acne or who are concerned about getting acne, and who are interested in members of the opposite sex. Several members of each group were dissatisfied with their build and their looks but there was no general trend here either.

In terms of adjustment, little difference could be found between members of the two groups during the course of the interviews, with the exception of one high barrier individual who indicated that he has a very poor self image. He expressed strong feelings of inadequacy and appeared to be a social isolate. He noted that the anticipation of the interview and the questions asked at the interview about his self image made him feel anxious. It was necessary to offer him support, and the suggestion was made that he consider availing himself of professional help; by this time, the subject had made strong efforts to convert the interview into a psychotherapy session.

CHAPTER V

SUMMARY AND CONCLUSIONS

The earlier Freudian notion that artistic creative productions represent sublimated libidinal or aggressive energies (1910) has been supplanted by the fuller concept of creative self-actualization (for example, Maslow, 1962; Barron, 1955). Instead of the hypothesized relationship between ego pathology and art put forth by Freud, Kris (1952) spoke of "regression in the service of the ego." The personality description of the creative individual hypothesized by Schafer (1958) and empirically identified (for example, MacKinnen, 1964) appears to be a well integrated, self-sufficient but often outgoing and communicative individual, who is able to experience a full range of sensations and emotions without neurotic anxiety. A similar description emerges when the focus is not on creativity nor on regression in the service of the ego, but is, rather, concerned directly with the personality of the individual who is aware of his bodily sensations (i.e., has a clear perception of his body image). Fisher and Cleveland (1968) define body image in terms of Barrier and Penetration, scores of which are based on a subject's responses to inkblots. They suggest that when an individual has a secure base of operations or adequate body image boundaries, as is reflected in a high barrier score, he can branch out into unusual and therefore potentially anxiety-laden experiences.

Again, the similarity emerges to Schafer's description of the person who, because of his high ego strength and well developed affect signals, is able to engage in adaptive regression.

Several recent studies have appeared linking creativity and body image (for example, Bachelis, 1965; or Holtzman, et. al., 1961, in a broad study in which the various inkblot determinants were factor analyzed).

The purpose of the present study was to examine creativity as it relates to body image. Several measures of creativity were utilized in order to sample creative approach or process and creative product; in addition an empirically keyed biographical inventory designed to identify creative individuals was included.

It was anticipated that high barrier individuals would be more open to their inner experiences, better equipped to regress in the service of the ego, and therefore more creative. The following hypotheses were therefore made:

1. High barrier subjects will obtain higher scores than low barrier subjects on the Experience Inquiry (Fitzgerald, 1966).

2. High barrier subjects will obtain higher scores than low barrier subjects on the RAT.

3. High barrier subjects will give a greater number of "M" responses than low barrier subjects to the Holtzman Inkblots.

4. High barrier subjects will obtain higher scores than low barrier subjects on the BIC- CrAW.

Further, in that there appeared to be common elements in the concepts of high barrier and ego strength, a separate measure of the latter was included in order to determine the extent to which these concepts overlap. It was anticipated that high barrier would be associated with ego strength. Additionally, since it was hypothesized that high barrier would be associated with creativity, the supposition followed that high ego strength would also be associated with creativity. The following supplementary hypotheses were therefore made:

5. A significant positive correlation will exist between Barrier scores and scores on the Ego Strength Scale.

6. A significant positive correlation will exist between scores on the Ego Strength Scale and scores on the Experience Inquiry.

7. A significant positive correlation will exist between scores on the Ego Strength Scale and scores on the RAT.

8. A significant positive correlation will exist between scores on the Ego Strength Scale and the number of "M" responses given to the Holtzman Inkblots.

9. A significant positive correlation will exist between scores on the Ego Strength Scale and scores on the BIC-CrAW.

At the initial testing session, 39 subjects who were considered "hard drug users" were eliminated from an initial pool of 144 paid, male undergraduate volunteers who attend a large metropolitan university. Of the remaining subjects, five who were asked to return for subsequent testing failed to appear, leaving a total of 100 subjects. The subjects were administered the Holtzman Inkblots in standardized group fashion. The inkblot protocols were then separately scored by the writer for Barrier, and for Human Movement ("M") by a specially devised scale. The 25 subjects who placed in the highest quarter on Barrier were defined as the "high barrier group" and the 25 subjects who placed in the lowest quarter were defined as the "low barrier group." All subsequent testing involved these two contrasting groups.

Two of the main hypotheses were supported: Barrier was found to be significantly related to "M" and to the BIC-CrAW but was not found to be related to the Experience Inquiry or to the RAT. It should be pointed out here that a high Human Movement score is often associated with people who are interested in communication and interpersonal relations, and that high barrier individuals also have these interests, often choosing occupations in which interpersonal relations and interaction with people is a prominent element (e.g., psychologists, artists, writers, etc.). This suggests that the kind of creativity with which Barrier is associated reflects an interest in communication and interpersonal relations.

While the hypothesized relation between Barrier and creativity therefore appears to have been partially confirmed, none of the supplementary hypotheses were supported. In fact, "M" and Ego Strength even correlated significantly negatively. One possible explanation for this is suggested in a study by Barron (1956) in which he raises the possibility of limitations in the Ego Strength Scale since it was observed that significant correlates of the scale were a cluster of traits which appear to reflect egocentrism more than ego strength. Another possible explanation involves the meaning of the M response. M is often associated with empathy (Schachtel, 1967) or with strong interest in interpersonal relations (Piotrowski, 1957, 1960); and in a factor analytic study by Holtzman, et. al. (1961) M has a high loading on a factor which reflects healthy adjustment, but in the Holtzman study M also has a high loading on a factor which is indicative of "disordered thought processes." It would therefore appear that M may have very different meanings for different individuals.

Also surprising in the results was the lack of relationship between Barrier and ego strength. Although this may merely be due to limitations in the Ego Strength Scale, another explanation for this is that high barrier may be indicative of a specific defensive style, rather than of ego strength.

In summary, the results of this study partially support the hypothesized relation between Barrier and creativity, but do not support the theory of creativity as adaptive regression. It should be noted that the subjects in this study were all students taking psychology courses, and therefore may be highly interested in interpersonal relations. Many of them stated that they intend to become psychologists. It is possible that personality factors inherent in such a group as this may have influenced the results in some way. The findings of this study do not warrant generalization to a female population, or population of different economic status, age, or cultural background. Then, too, the concepts of ego strength, body image, and creativity are each fundamentally very complex within themselves and assessing their interrelationships is therefore fraught with difficulties. More information is very necessary before fully acceptable definitions of these concepts can be arrived at. Future studies might profitably examine other populations utilizing a broader range of measures of these concepts.

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APPENDIX A

CRITERIA FOR SCORING BARRIER

(1) All references to clothing are scored Barrier. This is true also of all articles of clothing worn by animals and birds. Examples:

feet with red socks
woman in a dress
man with a coat on
man with a hat

(2) Animals or creatures whose skins are distinctive or unusual are scored only if more than the head of the animal is given. The following is a complete list of such animals:

alligator
badger
beaver
bobcat
chameleon
coyote
crocodile
fox
goat
hippo
hyena
leopard
lion
lizard
lynx
mink
mole
mountain goat
peacock
penguin
porcupine
prairie dog
rhinoceros
scorpion
sea lion
seal
sheep or lamb
Siamese cat
skunk
tiger
walrus
weasel
wildcat
wolverine
zebra

Any animal skin may be considered Barrier if unusual emphasis is placed on the textured, fuzzy, mottled, or striped character of the surface. Examples:

fuzzy skin
skin with spots
skin with stripes

Included in this general covering category are all shelled creatures except crabs and lobsters. Crabs and lobsters are excluded because of their frequency of occurrence. Lobsters and crabs are scored only in the unusual instances in which the shell alone is seen. Examples of shelled creatures:

snail
shrimp
mussel
clam
turtle

(3) Score references to enclosed openings in the earth. Examples:

valley
mine shaft
ravine
well
canal

(4) Score references to unusual animal containers. Examples:

bloated cat
kangaroo
pregnant woman
udder

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(5) Score references to overhanging or protective surfaces. Examples:

umbrella
dome
awning
shield

(6) Score references to things that are armored or much dependent on their own containing walls for protection. Examples:

tank
rocket ship in space
battleship
armored car
man in armor

(7) Score references to things being covered, surrounded, or concealed. Examples:

bowl overgrown by a plant
house surrounded by smoke
log covered by moss
person behind a tree
man covered with a blanket
person hidden by something
someone peeking out from behind a stone
donkey with load covering his back
person caught between two stones

(8) Score references to things with unusual container-like shapes or properties. Examples:

bagpipes
ferris wheel
throne
chair

(9) Do not score masks but score all references to buildings and vehicles with containing attributes. Examples:

tent
arch
fort
automobile
igloo
airplane
quonset hut
rocket

(10) Do not score instruments which grasp or hold. Examples:

pliers
tweezers
tongs

Additional general examples of Barrier responses:

basket
bay
bell
book
book ends
bottle
bubble
cage
candleholder
cave
cocoon
cove
curtain
dancer with veil
frosting on cake

fuzzy poodle
globe
harbor
headdress
hedge along a walk
helmet
inlet
lake surrounded by land
land surrounded by water
mountain covered with snow
net
pot
river
screen
spoon
urn
wall
wallpaper
wig

In scoring any record, the total number of responses falling into the above categories is compiled. Each response is given a value of 1. The final score is simply equal to the total number of Barrier responses.

APPENDIX B

CRITERIA FOR SCORING OF HUMAN MOVEMENT ("M") ON THE HIT

To qualify for an "M" scoring, responses were required to meet three sequential criteria: 1) Human Content, 2) Form Appropriateness, and 3) Movement.

1. A response was considered Human Content if it met any of the following criteria adapted from Holtzman, et. al. (1961, p. 67):

1) Any whole human being whose parts can be differentiated.
2) Parts of human beings.
3) The human face, if elaborated.
4) Human-like mythological or cartoon characters, etc.

2. Responses satisfying the first criterion were scored for Form Appropriateness based on the criterion of Holtzman, et. al. (1961, pp. 45-47):

0) poor form
1) fair form
2) good form

Kalsched (1972) notes that any response falling into the "fair" form category "easily qualifies" as equivalent to an F+ scoring by the various Rorschach scoring systems.

3. Responses satisfying the first two criteria were then scored for Movement according to Holtzman, et. al.'s (1961) four point scale (p. 51):

0) No movement or static potential for movement.
1) Static potential for movement as indicated by such participles as sitting, looking, resting, lying.
2) Casual movement, such as walking, talking, climbing, reaching.
3) Dynamic movement, such as lifting, dancing, running, weeping.
4) Violent movement, such as whirling, etc.

Odd-even reliability coefficients for the scoring of these sequential criteria are consistently in the .80's and .90's (cf. Holtzman, et. al., 1961, pp. 114-120).

APPENDIX C

EXPERIENCE INQUIRY

1. I am regarded by others as a person with strong sense of humor. (T)

2. Sometimes I wander off into my own thoughts while doing a routine task so that I actually forget that I am doing the task, and then find, a few minutes later, that I have completed it without even being aware of what I was doing. (T)

3. At times I have carried on real conversations with another person while I was asleep (e.g., with someone who walked into my room). (T)

4. Sometimes I have had the impression that the walls or the ceiling were moving and changing size or state, even though I knew that this was impossible. (T)

5. When I am working, I find it distracting if the TV is on or if someone is talking in the room. (F)

6. At times I have focused on something so hard that I went into a kind of benumbed state of consciousness, or at other times into a state of extraordinary calm and serenity. (T)

7. I can look at an object -- a leaf, a stone, a flower -- for a long time, continue to discover different things about it. (T)

8. I prefer Martin Luther King to Jonathan Winters. (F)

9. I avoid sports and activities that are thrilling but in which there is some risk of physical injury. (F)

10. I feel uncomfortable when I cannot make my ideas consistent. (F)

11. I avoid "putting people on" or doing things just to see the reaction of others. (F)

12. People are intolerable who take "sacred" things in a light and humorous way. (F)

13. One should be on guard against obscuring rational thought by beliefs in mystical experiences. (F)

14. Sometimes I imagine what it would be like if the world were different, e.g., if there were no laws, if we could read each other's minds, etc. (T)

15. I usually prefer to do things in tried ways rather than new and different ways. (F)

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16. It is possible that we had a previous existence of which we have no memory. (T)

17. I would like to get beyond the world of logic and reason and experience something new and different. (T)

18. At times I have actually stared at something familiar and had it become very strange before my eyes. (T)

19. While lying in bed or reclining on a chair I sometimes find myself perceiving faces, objects, etc. in the shadows of the light or the design of the ceiling, etc. (T)

20. I think that things should be predictable and certain. (F)

21. At times I see unusual relations between things. (T)

22. It is possible that our sense organs (i.e., eyes, ears, etc.) do not bring us our most important information. (T)

23. Poetry has little effect on me. (F)

24. I prefer the standards of the scientists to those of the artists. (F)

25. I like to indulge in emotions and sensations with the feeling of just "letting go." (T)

26. I would enjoy a contest in a carnival in which I had to break a pile of dishes. (T)

27. I have never had a strange or weird experience. (F)

28. I have had experiences which inspired me to write a poem or a story, or make up a humorous tale, or paint a picture. (T)

29. I have had the experience of being caught up by music or dancing, becoming enraptured by it, and having it live and express itself through me so that I seemed to cease to be. (T)

30. I am quick to see "double meanings" in things people are saying or in what I am reading. (T)

31. I think that miracles are possible. (T)

32. I think that our most intense experiences can be communicated in words to others. (F)

33. If one concentrates hard enough it is possible to influence the thoughts and behavior of other people. (T)

34. Some people are capable of extrasensory perception. (T)

35. There have been times when I have been completely immersed in nature or in art and had a feeling of awe sweep over me so that I felt as if my whole state of consciousness was somehow temporarily altered. (T)

36. I have experienced moments of inspiration and creativity, when artistic expression, ideas, or the solution to problems I had struggled with came to me with a special intensity and clarity. (T)

37. I prefer people who are predictable and dependable to those who are impulsive and changeable. (F)

38. I usually try to understand my dreams. (T)

39. It is not possible literally to read another person's mind. (F)

40. I think that unidentified flying objects from outer space have in fact been cited. (T)

41. I would like to try parachute jumping. (T)

42. At amusement parks I usually avoid roller-coasters, ferris wheels and similar "thrill rides." (F)

43. I think that many people in our culture have had visions at some time or another. (T)

44. Solutions to problems or ideas come to me at times "out of the blue." (T)

45. Most things people laugh at are not really funny. (F)

46. I enjoy "wild" parties. (T)

47. I am often bored when left alone. (F)

48. I have been so strongly in love with someone that I somehow felt that my own self was fading and I was at one with the beloved person. (T)

49. I have had the experience of doing some task in the middle of the night (e.g., jotting down a note, answering a phone call) with no memory the next morning of having done so. (T)

50. It is possible for the mind to leave the body and experience things at great distances, even in the past and in the future. (T)

51. When solving a problem I allow myself to consider all possibilities even though some are unrealistic or absurd. (T)

52. It is sometimes right to hit someone who makes you angry. (T)

53. I would prefer vacationing at a fashionable resort to sailing around the world, paddling down the Mississippi, or some similar activity. (F)

54. Eventually everything will be explained by the laws of science. (F)

55. It is often better to act upon one's feelings than upon a logically reasoned plan. (T)

56. I find myself uncomfortable in the presence of unconventional or "peculiar" people. (F)

APPENDIX D

BIOGRAPHICAL INVENTORY- CREATIVITY (BIC)

On this questionnaire are questions about such things as your home education, and hobbies. There are no "right" answers except the answers which are accurate about yourself.

For each question, select the one answer which best applies to you. Record your answer by circling one of the choices.

Be sure to answer every question; if you are not sure of an answer, make the best estimate or judgment you can. Answer those questions dealing with your parents in terms of the person who most fully acted as a father or mother to you, e.g., real parent, foster parent, relative, or guardian.

Remember to select the one answer that best applies to you for each question.

FAMILY HISTORY

1. Father's birthplace:
   - A. State in which currently residing
   - B. Other state in U. S. A.
   - C. Foreign country

2. Predominant national ancestry of father:
   - A. Italian
   - B. Irish
   - C. German
   - D. American (4th generation)
   - E. Other (including equal combination)

3. Father's education (highest level graduated):
   - A. Elementary School
   - B. High School
   - C. College
   - D. Graduate School
   - E. Other (including technical, etc.)

4. Father's major subject in college:
   - A. Business-Accounting
   - B. Natural sciences
   - D. Social sciences
   - E. Other (or Not Applicable)

5. Type of honors or awards father has received (select most frequent):
   - A. None
   - B. Writing-Arts (painting, poetry, drama, etc.)
   - C. Sciences
   - D. Sports
   - E. Other

Note: Remember to select only one answer for each question. If more than one answer should apply, select the most appropriate one.

6. Father plays a musical instrument:

A. Yes
B. No

7. Type of father's hobbies (select the one most frequent):

A. None
B. Collecting (stamps, coins, etc.)
C. Writing-Art
D. Scientific (electronics, etc.)

8. How often does your father read books, on the average?

A. One or two a year or less
B. One or two a month
C. One a week
D. Two or more a week

9. How often does your father play Bridge?

A. Never
B. Seldom
C. Occasionally
D. Frequently

10. When you were between the ages of 6 and 14 years, your father most frequently disciplined you by:

A. Spanking
B. Scolding or threatening
C. Loss of privileges
D. Reasoning
E. Other

11. Which one of the following adjectives do you consider most descriptive of your father?

A. Understanding
B. Independent
C. Industrious
D. Enthusiastic
E. Sincere

12. Mother's birthplace:

A. State in which currently residing
B. Other state in U. S. A.
C. Foreign country

13. Predominant national ancestry of mother:

A. Italian
B. Irish
C. German
D. American -4th generation
E. Other (including equal combinations)

14. Mother's education (highest level graduated):

A. Elementary school
B. High school
C. College
D. Graduate school
E. Other (including nursing, technical, etc.)

15. Mother's major subject in college:

A. Business-Accounting
B. Natural sciences
C. English-Art
D. Social sciences
E. Other (including Not Applicable)

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16. Type of honors or awards mother has received: (select most frequent)

A. None
B. Arts (writing, painting,
C. Sciences
D. Sports
E. Other

17. Mother plays a musical instrument:

A. Yes
B. No

18. Type of mother's hobbies: (select most frequent)

A. None
B. Collecting
C. Writing-Art
D. Sewing
E. Other

19. How often does your mother read books, on the average?

A. One or two a year or less
B. One or two a month
C. One a week
D. Two or more a week

20. When you were between the ages of 6 and 14 years, your mother most frequently disciplined you by:

A. Spanking
B. Scolding or threatening
C. Loss of privileges
D. Reasoning
E. Other

21. Which one of the following adjectives do you consider most descriptive of your mother?

A. Understanding
B. Independent
C. Industrious
D. Enthusiastic
E. Sincere

22. How often does your mother visit museums and art galleries:

A. Never
B. Seldom
C. Occasionally
D. Frequently

23. The discipline in your family might best be described as:

A. Always fair
B. Generally fair
C. Strict
D. Inconsistent
E. Uncertain

24. Which parent taught you most about art?

A. Mother
B. Father
C. Both parents about the same
D. Neither

25. Which parent taught you most about the value of an education?

A. Mother
B. Father
C. Both parents about the same
D. Neither

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26. Which parent taught you most about sports?

A. Mother
B. Father
C. Both parents about the same
D. Neither

27. Which parent taught you most about the appreciation of nature (trees, flowers, etc.)?

A. Mother
B. Father
C. Both parents about the same
D. Neither

28. How often does either of your parents speak a foreign language at home?

A. Never
B. Seldom
C. Occasionally
D. Frequently

29. How often has your family moved from one state to another?

A. Never
B. Once
C. Two or more times

30. Have any of your brothers or sisters received a national award or honor for academic achievement (e.g., National Merit Scholarship)?

A. No (including only child
B. Yes

EDUCATIONAL HISTORY

31. Did you attend nursery school?

A. Yes
B. No

32. You were first taught to read by:

A. Mother
B. Father
C. Brother or sister
D. Schoolteacher
E. Other

33. In elementary or junior high school, one of your favorite subjects was Mathematics:

A. Yes
B. No

34. In elementary or junior high school, one of your favorite subjects was Writing:

A. Yes
B. No

35. In elementary or junior high school, one of your favorite subjects was Art:

A. Yes
B. No

36. In elementary school, you received your highest marks in:

A. Math
B. Reading
C. Art
D. All subjects about equal
E. Other

37. In elementary school, you received a prize or award in art or writing:

A. No
B. Yes

38. In elementary school, what career appealed to you the most?

A. Teacher
B. Doctor-Lawyer
C. Artist-Writer-Actor
D. Scientist
E. Other (or None)

39. In high school (Grades 10, 11, 12), your favorite subject was:

A. Math
B. Writing
C. Art
D. Natural sciences
E. Other

40. In high school, you received your highest marks in:

A. Math
B. Writing
C. Art
D. Natural sciences
E. Other

41. Type of academic honors or awards you have received in high school:

A. Writing-Art
B. Natural sciences
C. Other
D. No awards or honors

42. Extent of voluntary participation in high school athletics:

A. Seldom or never
B. Occasionally
C. Frequently

43. How many extracurricular activities in high school did you participate in?

A. None
B. One
C. Two
D. Three
E. Four or more

44. Did you participate in high school extracurricular activities of a scientific (chemistry, physics, etc.) nature?

A. Yes | B. No

45. Did you participate in a high school extracurricular acticity of a writing-art nature?

A. Yes | B. No

46. Did you participate in high school extracurricular activities of an academic honor society nature?

A. Yes | B. No

47. Did you participate in high school extracurricular activities involving languages (classic or modern)?

A. Yes | B. No

48. Highest position you achieved in a high school extracurricular activity:

A. President-Editor-Chairman
B. Minor office (Vice-president, Secretary, etc.)
C. No office, member only
D. Did not join extra-curricular activities

49. Type of college you attended or are considering attending?

A. Ivy League
B. Large public metropolitan
C. Small private
D. Other
E. None

50. Number of college extracurricular activities you joined or are considering joining:

A. None
B. One
C. Two
D. Three
E. Four or more

51. Did you join or are you considering joining an art-writing extracurricular activity in college?

A. Yes | B. No

52. How many high school teachers did you have that you consider to be outstanding teachers?

A. None
B. One
C. Two
D. Three
E. Four or more

53. Did you obtain or do you anticipate obtaining an advanced degree after college?

A. Yes | B. No or undecided

AVOCATIONAL ACTIVITIES

54. Number of present hobbies (excluding sports and socializing, but including such activities as record collecting, reading, gardening, art-writing, sewing or cooking, woodworking, etc.).

A. None
B. One
C. Two
D. Three
E. Four or more

55. Do you currently have a hobby of an art-writing nature?

A. Yes
B. No

56. Do you currently have a hobby of a scientific nature (e.g., electronics, chemistry)?

A. Yes
B. No

57. As a child (before age 12) did you spend a great deal of your free time reading?

A. Yes
B. No

58. As a child, did you have a hobby of an art-writing nature?

A. Yes
B. No

59. As a child, did you have a hobby of a scientific nature?

A. Yes
B. No

60. Number of hobbies you had as a child:

A. None
B. One
C. Two
D. Three
E. Four or more

61. Number of childhood hobbies that have continued to present:

A. None
B. One
C. Two
D. Three
E. Four or more

62. Type of musical instrument you now play (most frequently):

A. None
B. Guitar-banjo
C. Piano
D. Brass type (e.g., trombone)
E. Other

63. Did you ever take private art lessons?

A. Yes
B. No

64. Did you ever receive lessons in ceramics, woodworking, or other crafts?

A. Yes B. No

65. Which one of the following types of art do you like best (choose only one)?

A. Impressionistic
B. Primitive
C. Pop or Op
D. Realistic
E. Other (or None)

66. About how many books do you read in a year (other than school books)?

A. 0 - 5
B. 6- 10
C. 11 - 30
D. 31 - 50
E. Over 50

67. Which type of book do you most prefer to read for your own enjoyment?

A. None
B. Science fiction
C. Biography
D. Adventure
E. Other (philosophy, history, etc.)

68. How many collections (e.g., stamps, matchbooks, rocks, shells) do you now have?

A. None
B. One
C. Two
D. Three
E. Four or more

69. Have you ever owned an unusual collection (e.g., spider webs, road signs)?

A. Yes B. No

70. What is the longest period you have continued one of your collections?

A. No collection
B. 1 year
C. 2 years
D. 3 years
E. Over 3 years

71. Do you regularly read the sports section of the newspaper?

A. Yes B. No

72. Do you regularly read the editorial section of the newspaper?

A. Yes B. No

73. Do you regularly read the book review section of the newspaper?

A. Yes B. No

74. How many different sections of the newspaper (e.g., comics, news, theater, book review, columnists, sports, editorial) do you regularly read?

A. None
B. One
C. Two
D. Three
E. Four or more

75. Number of different magazines bought regularly in your home?

A. None
B. One
C. Two
D. Three
E. Four or more

76. Is one or more of the following magazines bought regularly in your home? Saturday Review, Atlantic Monthly, Harpers, New Yorker

A. Yes
B. No

77. Type of magazines bought regularly in your home: foreign affairs -- political commentary (e.g., Atlas, Nation, New Republic):

A. Yes
B. No

78. Type of magazines bought regularly in your home: scientific (e.g., Science, Scientific American):

A. Yes
B. No

79. About how many classical records do you personally own?

A. None
B. 1-5
C. 6-10
D. 11-25
E. Over 25

80. About how many folk records do you personally own?

A. None
B. 1-5
C. 6-10
D. 11-25
E. Over 25

81. How often do you visit art museums or galleries?

A. Never
B. Seldom
C. Occasionally
D. Frequently

82. How often do you attend stage plays?

A. Never
B. Seldom
C. Occasionally
D. Frequently

83. How often do you attend sports events?

A. Never
B. Seldom
C. Occasionally
D. Frequently

84. How often do you attend concerts?

A. Never	C. Occasionally
B. Seldom	D. Frequently

85. About how many hours a week do you typically spend playing sports?

A. None	C. 6-15
B. 1-5	D. Over 15

86. About how many hours a week do you typically spend on hobbies?

A. None	C. 6-15
B. 1-5	D. Over 15

87. Do you personally own art supplies (e.g., paints, brushes)?

A. Yes B. No

88. Have you ever owned a microscope?

A. Yes B. No

89. Have you ever owned a chemistry set?

A. Yes B. No

MISCELLANEOUS

90. Have you ever had a significant part in a play or dramatic production?

A. Yes B. No

91. Have you ever received an honor or award in science apart from school (e.g., Westinghouse National Science Award)?

A. No B. Yes

92. Have you ever received a sholastic honor or award apart from school (e.g., National Merit Scholarship Award)?

A. No B. Yes

93. Before entering high school, did you ever invent or design anything, create a new object, or write an original story, song, play, etc.?

A. No	D. Yes, 6-10 objects
B. Yes, 1 object	E. Yes, over 10 objects
C. Yes, 2-5 objects	

94. Did you create a mechanical or electronic object before high school?

A. Yes B. No

95. Did you create a story or poem before high school?

A. Yes B. No

96. How often do you usually go on dates?

A. Never
B. About once a year
C. About once a month
D. About once a week
E. About twice a week or more

97. Do you personally own a cat?

A. Yes B. No

98. Number of different types of pets you have personally owned (e. g., cats, dogs, fish, insects, rodents, reptiles-lizards, turtles-frogs, birds):

A. None
B. One
C. Two
D. Three
E. Four or more

99. Have you ever joined a science club or organization apart from school?

A. Yes B. No

100. Number of different parts of the United States you have visited (i.e., Northeast, Northwest, Far West, Southwest, Middle States, South):

A. None
B. One
C. Two
D. Three
E. Four or more

101. Have you ever had a summer job of a scientific nature (e.g., laboratory work)?

A. Yes B. No

102. You tend to daydream:

A. Never
B. Seldom
C. Occasionally
D. Frequently

103. You tend to daydream about sports:

A. Yes B. No

104. How often do you write poems or verses for your own enjoyment?

A. Never
B. Seldom
C. Occasionally
D. Frequently

105. Before high school, how many of your drawings or paintings were framed, if any?

A. None
B. One
C. Two
D. Three or more
E. Four or more

106. Which of the following games was your favorite in childhood?

A. Monopoly
B. Bingo
C. Scrabble
D. Mechanical puzzles
E. Other

107. The earliest memory you have of your childhood is when you were approximately:

A. 6 years old
B. 5 years old
C. 4 years old
D. 3 years old
E. 2 years old or earlier

108. As a child, did you ever have any imaginary companions (e.g., friends, animals)?

A. No
B. Yes - one
C. Yes - two
D. Yes - three or more

109. As a child, how many od rhw following things can you recall being afraid of: the dark, monsters, animals, reptiles, high places, drowning, certain people, thunder and lightning:

A. None
B. One
C. Two
D. Three
E. Four or more

110. Are you considering a career as a teacher or social worker?

A. Yes
B. No

111. Are you considering a career as an artist or writer?

A. Yes
B. No

112. Are you considering a career as a scientist?

A. Yes
B. No

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113. Have you definitely decided on a career?

A. Yes
B. No

114. Are any of your close friends considering a career in business?

A. Yes
B. No

115. Are any of your close friends considering a career as an artist or writer?

A. Yes
B. No

116. Your close friends are usually:

A. Younger than you
B. Same age as you
C. Older than you
D. Both older and younger than you
E. Other combination (i.e., same age and older)

117. How many really close friends did you have in elementary school, if any?

A. None
B. One
C. Two
D. Three
E. Four or more

118. Did you have your own room as a child?

A. No
B. Yes, in elementary school
C. Yes, both in elementary and high school

119. Do you remember ever making up a new childhood game or toy? (e.g., card or word game)

A. No
B. Yes - one
C. Yes - two or more

120. How often were you a leader of your childhood group activities up to age 12?

A. Never
B. Seldom
C. Occasionally
D. Frequently

121. When you have a personal problem, you usually seek help from:

A. Mother
B. Father
C. Friend
D. Several persons
E. Other (including No one)

122. How often have you entered a strange place and felt that you had been there before, or felt that you knew something was going to happen before it actually occured?

A. Never
B. Seldom
C. Occasionally
D. Frequently

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123. How often have you had an event or object vividly pictured in your mind after it was no longer present to your senses?

A. Never	C. Occasionally
B. Seldom	D. Frequently

124. How often have you had a complete memory lapse for a very familiar person, place, or thing?

A. Never	C. Occasionally
B. Seldom	D. Frequently

125. How often have you become so absorbed in a project that you skipped a meal or stayed up very late?

A. Never	C. Occasionally
B. Seldom	D. Frequently

- -

Please be sure that you have answered every question. If you are not certain about how to answer a question, make the best judgment you can.

APPENDIX E

REMOTE ASSOCIATES TEST

(COLLEGE FORM 1) (RAT)

Instructions: In this test you are presented with 3 words and asked to find a fourth word which is related to all three. Write this word in the space to the right.

For example, what word do you think is related to these three?

A. cookies sixteen heart ________________________

The answer in this case is "sweet". Cookies are sweet; sweet is part of the phrase "sweet sixteen", and part of the word "sweetheart".

Here is another example:

B. poke go molasses ________________

You should have written "slow" in the space provided. "Slow poke", "go slow", "slow as molasses". As you can see, the fourth word may be related to the other three for various reasons.

Try these next two: C. surprise line birthday ___________

D. base snow dance ________________

The answers are: C. party, D. ball.

Now try the groups of words below.

				ANSWER
1.	stop	petty	sneak	
2.	elephant	lapse	vivid	
3.	lick	sprinkle	mines	
4.	shopping	washer	picture	
5.	stalk	trainer	king	
6.	sea	home	stomach	
7.	walker	main	sweeper	
8.	mouse	sharp	blue	
9.	envy	golf	beans	
10.	board	magic	death	
11.	athletes	web	rabbit	
12.	pot	butterflies	pump	
13.	bald	screech	emblem	
14.	note	dive	chair	
15.	cherry	time	smell	
16.	Southern	console	station	
17.	chocolate	fortune	tin	
18.	base	complex	sleep	
19.	wicked	bustle	slicker	
20.	skunk	kings	boiled	
21.	habit	pouch	road	
22.	soap	shoe	tissue	
23.	blood	music	cheese	
24.	room	Saturday	salts	

25.	widow	bit	monkey	____________
26.	chamber	staff	box	____________
27.	inch	deal	peg	____________
28.	puss	spit	boiled	____________
29.	jump	kill	bliss	____________
30.	sore	shoulder	sweat	____________

APPENDIX F

EGO STRENGTH SCALE

1. I have a good appetite. (T) (2)
2. I have diarrhea once a month or more. (F) (14)
3. At times I have fits of laughing and crying that I cannot control. (F) (22)
4. I find it hard to keep my mind on a task or job. (F) (32)
5. I have had very peculiar and strange experiences. (F) (33)

6. I have a cough most of the time. (F) (34)
7. I seldom worry about my health. (T) (36)
8. My sleep is fitful and disturbed. (F) (43)
9. When I am with people, I am bothered by hearing very queer things. (F) (48)
10. I am in just as good physical health as most of my friends. (T) (51)

11. Everything is turning out just like the prophets of the Bible said it would. (F) (58)
12. Parts of my body often have feelings like burning, tingling, crawling, or like "going to sleep." (F) (62)
13. I am easily downed in an argument. (F) (82)
14. I do many things which I regret afterwards. (I regret things more or more often than others seem to.) (F) (94)
15. I go to church almost every week. (T) (95)

16. I have met problems so full of possibilities that I have been unable to make up my mind about them. (F) (100)
17. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right. (T) (109)
18. I like collecting flowers or growing house plants. (F) (132)
19. I like to cook. (F) (140)
20. During the past few years I have been well most of the time. (T) (153)

21. I have never had a fainting spell. (T) (174)
22. When I get bored, I like to stir up some excitement. (T) (181)
23. My hands have not become clumsy or awkward. (T) (187)
24. I feel weak all over much of the time. (F) (189)
25. I have had no difficulty in keeping my balance in walking. (T) (192)

26. I like to flirt. (T) (208)
27. I believe my sins are unpardonable. (F) (209)
28. I frequently find myself worrying about something. (F) (217)
29. I like science. (T) (221)
30. I like to talk about sex. (T) (231)

31. I get mad easily and then get over it soon. (T) (234)
32. I brood a great deal. (F) (236)
33. I dream frequently about things that are best kept to myself. (F) (241)
34. My way of doing things is apt to be misunderstood by others. (F) (244)
35. I have had blank spells in which my activities were interrupted and I did not know what was going on around me. (F) (251)

36. I can be friendly with people who do things which I consider wrong. (T) (253)
37. If I were an artist, I would like to draw flowers. (F) (261)
38. When I leave home, I do not worry about whether the door is locked and the windows closed. (T) (270)
39. At times I hear so well it bothers me. (F) (341)
40. Often I cross the street in order not to meet someone I see. (F) (344)

41. I have strange and peculiar thoughts. (F) (349)
42. Sometimes I enjoy hurting persons I love. (T) (355)
43. Sometimes some unimportant thought will run through my mind and bother me for days. (F) (359)
44. I am not afraid of fire. (T) (367)
45. I do not like to see women smoke. (F) (378)

46. When someone says silly or ignorant things about something I know, I try to set him right. (T) (380)
47. I feel unable to tell anyone all about myself. (F) (384)
48. My plans have frequently seemed so full of difficulties that I have had to give them up. (F) (389)
49. I would certainly enjoy beating a crook at his own game. (T) (410)
50. I have had some very unusual religious experiences. (F) (420)

51. One or more members of my family is very nervous. (T) (421)
52. I am attracted by members of the opposite sex. (T) (430)
53. The man who had most to do with me when I was a child (such as my father, stepfather, etc.) was very strict with me. (T) (458)
54. Christ performed miracles such as changing water into wine. (F) (483)
55. I pray several times every week. (F) (488)

56. I feel sympathetic towards people who tend to hang on to their griefs and troubles. (F) (489)
57. I am afraid of finding myself in a closet or small closed place. (F) (494)

58. Dirt frightens or disgusts me. (F) (510)
59. I think Lincoln was greater than Washington. (T) (513)
60. In my home we have always had the ordinary necessities (such as enough food, clothing, etc.). (T) (515)

61. I am made nervous by certain animals. (F) (525)
62. My skin seems to be unusually sensitive to touch. (F) (541)
63. I feel tired a good deal of the time. (F) (544)
64. I never attend a sexy show if I can avoid it. (F) (548)
65. If I were an artist, I would like to draw children. (F) (554)

66. I sometimes feel that I am about to go to pieces. (F) (555)
67. I have often been frightened in the middle of the night. (F) (559)
68. I very much like horseback riding. (F) (561)

Note: The numbers in parentheses are the numbers of the items as they appear in the booklet form of the MMPI.

APPENDIX G

DRUG QUESTIONNAIRE

Please circle
appropriate answers

1. Do you smoke pot? Yes No
If answer is "yes" please state frequency
____

2. Have you experimented with drugs other than pot? Yes No
If "yes" have you experimented with Ups Downs Heroin Cocaine

LSD or other psychedelics

Other ________________________
(specify)

3. If answer is "yes" to item 2 please state frequency and dosage. ________________________________

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APPENDIX H

THE STANDARDIZED GROUP METHOD OF ADMINISTRATION FOR THE HIT

Description. In its present standardized form, the group method involves several modifications in the instructions and procedures as employed for the individually administered version of the HIT. The administration of the group method consists of the following procedure:

1. The directions on the front of the special group booklet (or printed on individual sheets when the individual Record Form is used in the group method) are read aloud to the subjects while they are reading them silently.

"You will be shown a series of inkblots, each of which will be projected on the screen before you for one minute. Using your imagination, write down in the space provided a description of the first thing the blot looks like or reminds you of."

"Include in your description the particular characteristics or qualities of the inkblot which are important in determining your responses -- i.e., what about the blot made it look that way? Give as complete an answer as you can in the time available."

"None of these inkblots has been deliberately drawn to look like anything in particular. No two people see exactly the same things in a series of inkblots like these. There are no right or wrong answers."

2. Trial inkblot X is projected on the screen. The examiner states that a common response to this inkblot is a "bat or winged creature." He outlines on the screen the area of the inkblot used in this response (W, omitting the d's on each side), points out the various parts (head, wings, tail) of the "bat," and briefly mentions the role of form in determining this response. The examiner then explains that such a response might be written as "bat because of the form" in the space provided, outlining the appropriate area on the accompanying diagram. Next, the examiner says that another common response to this inkblot is "pool of oil," which serves to illustrate the use of color and shading rather than form as determinants. Finally, the examiner states that still another response to this inkblot is a "steer's head," outlines the area used (center D), and discusses the role of form, color, and shading in determining it.

Card Y is then projected on the screen, and the examiner points out a common response, "human figure," and mentions the role of form in determining the response. Using the same area, he then cites another common response, "skeleton," and points out the role of form and shading as determinants. Finally, the examiner states that still another response to this inkblot is "blood," thus providing an opportunity to illustrate a response with color alone as the primary determinant.

3. The initial instructions are repeated (para-

phrased), and the subjects are asked if they have any questions.

4. In accordance with a prearranged schedule during the test series, the subjects are occasionally reminded of important aspects of the instructions. Eight inkblots scattered through the series are verbally reinforced as indicated below.

Card Number	Verbal Reinforcement
2	"Write out as complete a description as you can in the time and space available."
3	"Just let your imagination run, and put down what the inkblot suggests to you -- what you see in it."
6	"This is another one of those blots where you'll have to be careful in outlining that part of the area which you use."
8	"Write out as best you can what characteristics of the inkblot were deciding factors in your response."
9	"Be sure to draw a line around that part of the blot that suggested your response."
14	"We're particularly interested in knowing what aspects of the inkblot influenced your response."
19	Same as for Card 9.
24	Same as for Card 2.

5. Inkblots 1, 2, and 3 are each exposed for 120 seconds; 4, 5, and 6 for 100 seconds; 7, 8, and 9 for 90 seconds; and the remaining thirty-six inkblots are each exposed for 75 seconds.

APPENDIX I

STRUCTURED INTERVIEW

1. Do you ever think about your own body? (If so, when? What kinds of thoughts do you have?)
2. Have you ever had any concern with dieting? Have you ever done any weight lifting? (Do you see yourself as overweight or underweight, not as tall as you would like to be or taller than you would like to be, etc?)
3. When you get nervous which part(s) of your body react(s) most? (Skin rashes? Tensing of muscles or tightening of breath? Stomach distress? Headache? Noticeable change in heartbeat?)
4. What are your thoughts to the saying, "Clothes makes the man?"
5. How attractive do you view yourself?
6. What is the most important part of your body?
7. How would you rate your own strength?
8. What is your view of the "weak organ theory" and what is your weakest organ?

In order to augment the interview, interspersed with the above questions were the following incomplete sentences from Fisher and Cleveland (1968, p. 99):

1. The skin often . . . .
2. Most people think their skin will . . . .
3. If you look at a person's skin . . . .

Leroy J. Loshak *

B.A., Queens College (CUNY)

M.A., Fordham University

Creativity, Ego Integration, and Body Image Boundaries.

Dissertation directed by Marvin Reznikoff, Ph.D.

The purpose of the current study was to examine body image (Barrier) as it relates to creativity. It was hypothesized that high barrier subjects would obtain higher scores than low barrier subjects on various creativity measures. Several measures of creativity were utilized in order to assess creative approach or process and creative product. Also included was the art and writing scale of the Biographical Inventory- Creativity (BIC- CrAW). The BIC is a self report inventory which had been developed specifically to identify creative adolescents on the basis of their experiences in the formative years and by the patterns of important choices they made during their lives. Items on the BIC are divided into four subscales: family history, educational history, avocational activities, and miscellaneous.

In that there appeared to be common elements in the concepts of high barrier and ego strength, Barron's Ego Strength Scale was also included as a measure of ego strength in order to assess the extent to which high barrier and ego strength overlap. A supplementary hypoth-

esis posited that there would be a statistically significant positive correlation between Barrier and ego strength. Additional supplementary hypotheses were made which predicted that there would be a statistically significant positive correlation between ego strength and each of the various creativity measures.

The subjects of this investigation were paid, male undergraduate students at a large metropolitan university. On the basis of their responses to the Holtzman Inkblots, administered in group fashion, two contrasting Barrier groups were selected from a pool of 100 subjects. These subjects were subsequently asked to complete Barron's Ego Strength Scale, a college version of the Remote Associates Test (RAT), the Fitzgerald Experience Inquiry and the BIC. The RAT consists of 30 items. Test items consist of sets of three words drawn from mutually remote cluster, and the subject is required to find a fourth word which could serve as an associative link between the disparate words. Numerous studies are available in the literature that furnish evidence of the ability of the RAT to differentiate creatives from non-creatives. The Fitzgerald Experience Inquiry is a 56 item self report inventory which operationalizes Schachtel's concept of openness to experience. High scorers on the Experience Inquiry have been found to be more capable than low scorers of displaying regressive shifts in thinking, in object sorting, and in word associations, when working under

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instructions to give responses they thought "unregulated" unconventional persons would give. For a fourth measure of creativity the inkblot protocols were scored for Human Movement ("M") by a specially devised scale which required both human content and "fair" or "good" Form Appropriateness, in addition to Human Movement.

The results supported two of the four main hypotheses: Barrier was found to be statistically related to "M" and to the BIC- CrAW. The findings, therefore, partially support the hypothesized relationship between Barrier and creativity.

The results did not support a relationship between Barrier and Ego Strength; nor were the other supplementary hypotheses relating ego strength and creativity supported, thereby casting doubt on the theory of creativity as adaptive regression.

Concerning the lack of a relationship between Barrier and the Ego Strength Scale, the possibility arises that high barrier may not reflect ego strength, but may reflect instead, the specific defensive style associated with drive orientation and high motivation toward mastery of problems. Possible limitations in the Ego Strength Scale may also account for the negative findings.

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VITA

Leroy Joel Loshak, son of Emanuel and Thelma Meltzer Loshak, was born on June 10, 1946, in Brooklyn, New York. He attended The Stuyvesant High School, New York City, and was graduated in June 1963.

He entered Queens College (CUNY) in September 1963 and was graduated in June 1967 with a B.A. in Psychology.

In September 1967 he was accepted as a psychology student in the Graduate School of Arts and Sciences of Fordham University, and received his M.A. in February 1969. In December 1971, he completed his third year of internship training at various Veterans Administration hospitals in the New York metropolitan area. At present, he is a staff psychologist at the New Hope Guild Center, Brooklyn, New York. In the Psychology Department at Fordham University he has specialized in Clinical Psychology.